



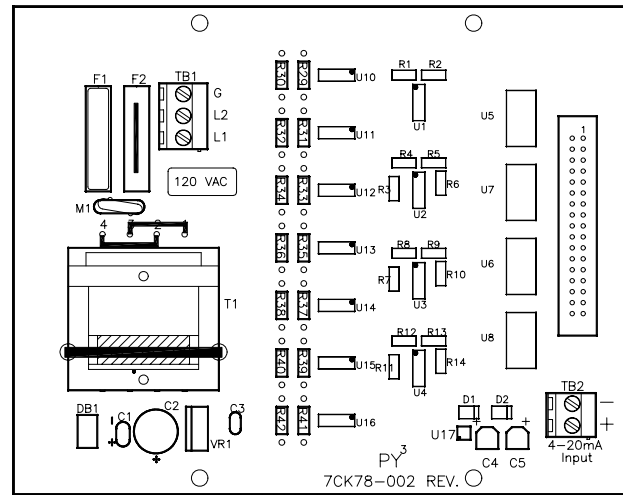
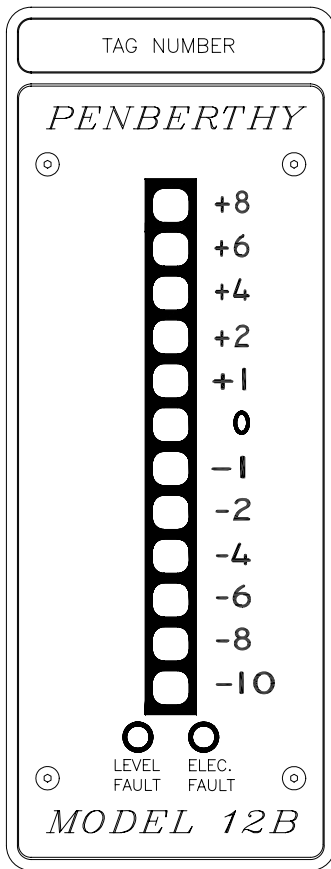
Flow Control

PENBERTHY®

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Installation, Operation and Maintenance for Penberthy 4-20mA Loop Input Display

Model 3101



Installation, Operation and Maintenance
Instructions

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PENBERTHY PRODUCT WARRANTY

Tyco Valves & Controls-Prophetstown warrants its Penberthy products as designed and manufactured by TV&C-Prophetstown to be free of defects in the material and workmanship for a period of one year after the date of installation or eighteen months after the date of manufacture whichever is earliest. TV&C-Prophetstown will, at its option, replace or repair any products which fail during the warranty period due to defective material or workmanship.

Prior to submitting any claim for warranty service, the owner must submit proof of purchase to TV&C-Prophetstown and obtain written authorization to return the product. Thereafter, the product shall be returned to TV&C in Prophetstown, Illinois, with freight paid.

This warranty shall not apply if the product has been disassembled, tampered with, repaired or otherwise altered outside of TV&C-Prophetstown factory, or if it has been subject to misuse, neglect or accident.

The responsibility of TV&C-Prophetstown hereunder is limited to repairing or replacing the product at its expense. TV&C-Prophetstown shall not be liable for loss, damage or expenses related directly or indirectly to the installation or use of its products, or from any other cause or for consequential damages. It is expressly understood that TV&C-Prophetstown is not responsible for damage or injury caused to other products, buildings, personnel or property, by reason of the installation or use of its products.

THIS IS TV&C-PROPHETSTOWN'S SOLE WARRANTY AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED WHICH ARE HEREBY EXCLUDED, INCLUDING IN PARTICULAR ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

This document and the warranty contained herein may not be modified and no other warranty, expressed or implied, shall be made by or on behalf of TV&C-Prophetstown unless made in writing and signed by the General Manager or Director of Engineering of TV&C-Prophetstown.

INSTALLATION, OPERATION and MAINTENANCE MANUAL FOR PENBERTHY MODEL 3101

1.0 Description

The Model 3101 module is designed with mounting versatility in mind. It can be used with any of the Penberthy Electronic Water Level Gages. Each display is custom-matched to a Model P420 4-20mA driver. Do NOT interchange Model 3101 displays.

2.0 Supply & Installation

2.1 Packing

Prior to installing this equipment clean all packing material from around the unit and inspect for any damage that may have occurred during shipment. Any claims for loss or damage must be filed by the purchaser with the carrier. A copy of the bill of lading and freight bill will be supplied on request by TV & C – Prophetstown.

2.2 Installation of Board

There are many mounting options with the Model 3101. If the 3101 has been supplied as part of a new Electronic Water Level Gage and has been factory-installed in the host unit's enclosure or in a display enclosure (see Figures 5-8), then this section may be skipped. If the Model 3101 is to be field-installed, please refer to Figure 2 for wiring diagram and Figures 3-5 for mounting dimensions.

2.3 Wiring Requirements

All wiring shall be terminated in a screw type terminal block, a screwed crimp-on terminal or a screwed lug point. All wiring for mains in and Display input shall be bundled and tie wrapped to maintain separation. To reduce RFI/EMI pick-up, a cable with an overall shield should be used for the Display connections. This is a low current line so small wire diameters are acceptable. The maximum distance is 3300ft [1KM], refer to section 2.4 for other details.

Wiring shields should be terminated on both ends to the enclosures' ground lugs – not to circuit common. TV&C – Prophetstown recommends that all wiring be enclosed in electrical metallic tubing (EMT) and that drip loops are established at each enclosure entry point. Spiral wrap cable conduits (e.g. Greenfield, BX) should not be used.

2.4 Wiring (Refer to Figure 2)

Note: All wiring should be in accordance with applicable national and local codes by qualified personnel.



Before making any connections, make sure that the power source to be used is isolated by use of the appropriate circuit breakers and switches so that no work is being performed with “live wires”, otherwise personal injury or property damage may result.



WARNING

The nature of the electronics, the harsh operating environment and the potential hazards associated with live steam require that only qualified personnel install and maintain this equipment. Without adequate qualifications, an operator could allow live steam to escape, which may cause property damage or severe personal injury.

For reliable operation, a mains power source with the following requirements is required:

120 or 240 Vac
Single Phase, 50/60 Hz
2.4VA minimum

Mains higher than 240 Vac will require the use of a stepdown transformer. DC voltages will require use of a voltage inverter.

(refer to fig 1, loc 1)

Mains power is connected to TB1. Mains power may be wired in parallel with the host unit mains power supply or from a separate line.

For 120 Vac operation: L1 is “hot”, L2 is “neutral”. A fuse should be installed at F1. Connect the ground wire to the host unit ground.

For 240 Vac operation: Line 1 is connected to L1 and Line 2 is connected to L2. Fuses should be installed at F1 and F2. Connect the ground wire to the host unit ground.

Mains power is MOV protected. Although the Model 3101 uses a jumper set primary transformer, do not attempt to change factory set mains voltage level unless the MOV is also changed to the proper value.

The ribbon cable supplied with the module connects to the 3101 module (Figure 1, loc 2) and to the display PCB.

Display input terminal block TB2 (Figure 1, loc 3) connects to the Model P420 loop output terminal block (Figure 2).

3.0 Maintenance

No maintenance is required.

4.0 Spare Parts

There are no recommended spares for this unit. Consult your Tyco or Penberthy distributor or TV&C-Prophetstown for replacement Model 3101 modules. Please have available the serial number of the unit with which the Model 3101 module will be used. This is critical for the Model 3101 since each unit is hardwire programmed to match its transmitter.

Note: If the Model P420 4-20mA Loop Transmitter is to be replaced, it must be programmed to match any Model 3101 units installed.

5.0 Model 3101 Specifications *

Input Voltage:	120Vac / 240Vac
Frequency:	50-60 Hz
Power (max):	2.4VA minimum
Operating Temperature:	32 – 160°F [0°C –70°C] 121°F [50°C] MAXIMUM AMBIENT
Wiring Specifications: Model 420 to Model 3101 Remote Display	300V, 221°F [105°C] 20 – 28 AWG or larger PVC or better insulating jacket, two conductors required.
Dimensions/Weights:	(12-LED panel mount display) 8" [20 cm] H x 10" [25 cm] W x 4.75" [12 cm] D 1 lb [0.5 kg]
Manufacturing Standards:	CSA 22.2 NFPA-70 (NEC)

*Specifications and descriptions are subject to change without notice.

6.0 Disposal at End of Useful Life

The Model 3101 may be used in a variety of applications. By following the appropriate national and industry regulations, the user must determine the extent of preparation and treatment the Model 3101 must incur before its disposal. A Material Safety Data Sheet (MSDS) may be required before disposal services accept certain components.

Metal, glass and polymers should be recycled whenever possible. Refer to order and TV&C - Prophetstown Material Specification sheets for materials of construction.

**RIGHT TO KNOW LAWS AND OSHA STANDARD 29CFR (1910.1200)
Material Safety Data Sheets on the following Penberthy product:
Model 3101**

The OSHA Hazard Communication Standard 29CFR 1910.1200, states that the standard does not apply to "articles". The standard defines an article as:

*A manufactured item formed to a specific shape or design for a particular use which does not release or otherwise expose an employee to a hazardous chemical under normal conditions of use".

The above named products fall within the definition of an 'article', no Material Safety Data Sheets are available or are required. Our product is manufactured as an "end product".

If the product is a weld end the following applies.

WARNING: Materials used in manufacture of Penberthy products are considered in a stable condition when shipped. However, under certain conditions purchasers could create potential hazardous conditions by their future operations.

Caution: Welding, cutting, burning, machining or grinding of this product can generate toxic dust and fumes of potentially hazardous ingredients. The dust or fumes can cause irritation of the respiratory tract, nose, throat, skin and eyes. It may cause temporary or permanent respiratory disease in a small percentage of exposed individuals. Use moderate ventilation when grinding or welding. Avoid breathing dust, fumes or mist. Avoid prolonged skin contact with dust or mist. Maintain dust levels below OSHA and ACGIH levels. Use protective devices. Wash hands thoroughly after contact with dust before eating or smoking.

For emergency information contact:

Tyco Valves & Controls, L.P. Prophetstown
320 Locust St., Prophetstown, Illinois 61277
Phone: 815-537-2311
Fax: 815-537-5365
E-mail: boilertrimteam@tycovalves.com

7.0 Telephone Assistance / Factory Repair

If you are having difficulty with your Model 3101, contact your local Tyco / Penberthy distributor. You may also contact the factory direct at (815) 537-2311 and ask for an applications engineer. So that we may assist you more effectively, please have as much of the following information available when you call:

- Model #
- Serial #
- Name of the company from whom you purchased the Model 3101
- Invoice # and date
- Process conditions (pressure, temperature, cycle rate, etc.)
- A brief description of the problem
- Troubleshooting procedures that failed

If attempts to solve your problem fail, you may request to return your Model 3101 to the factory for intensive testing. You must obtain a Return Authorization (R.A.) number from TV&C - Prophetstown before returning anything. Failure to do so will result in the unit being returned to you without being tested, freight collect. To obtain an R.A. number, the following information (in addition to that above) is needed:

- Reason for return
- Person to contact at your company
- "Ship To" address

There is a minimum charge of \$100.00 for evaluation of non-warranty units. You will be contacted before any repairs are initiated should the cost exceed the minimum charge. If you return a unit under warranty, but is not defective, the minimum charge will apply.

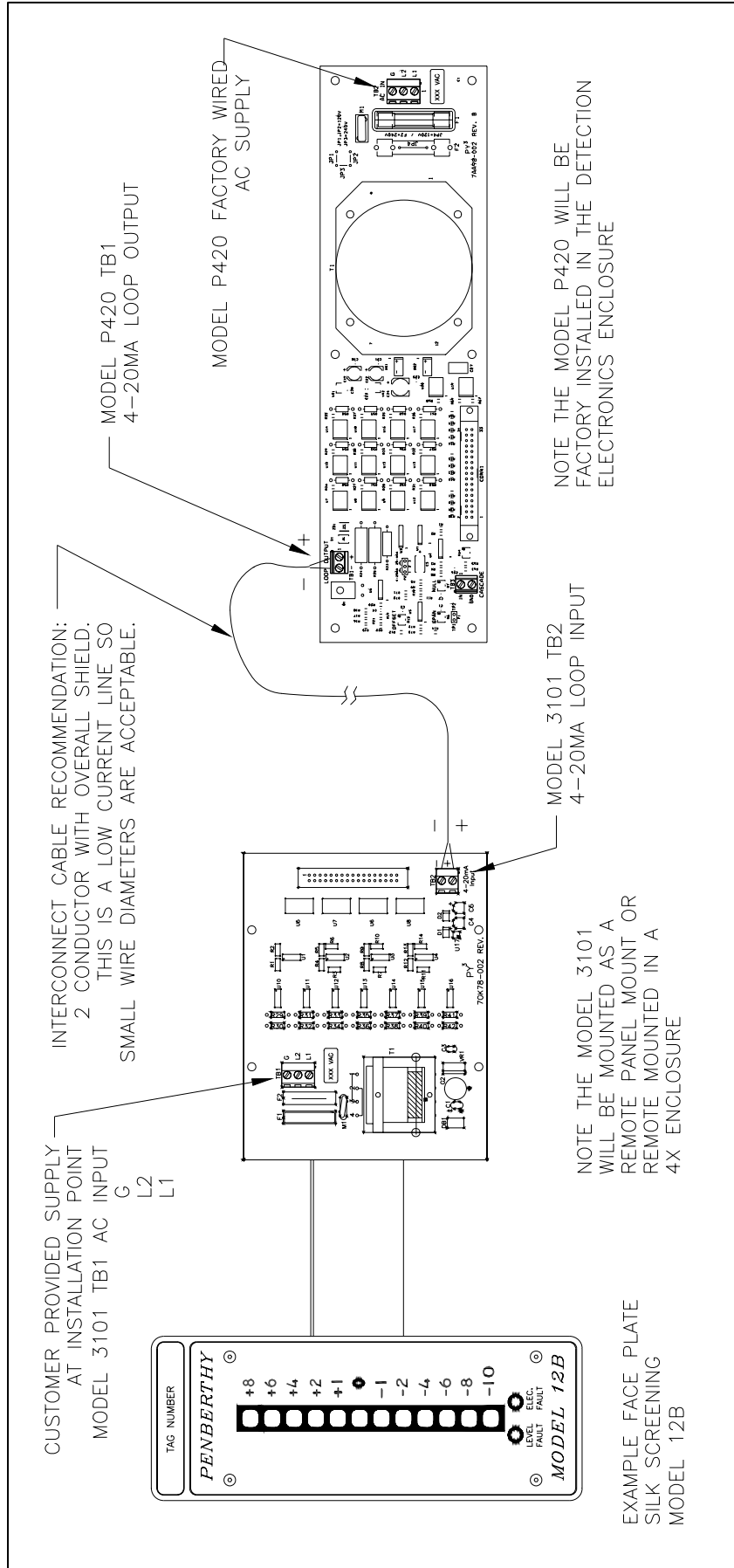


Figure 2 – Wiring Diagram

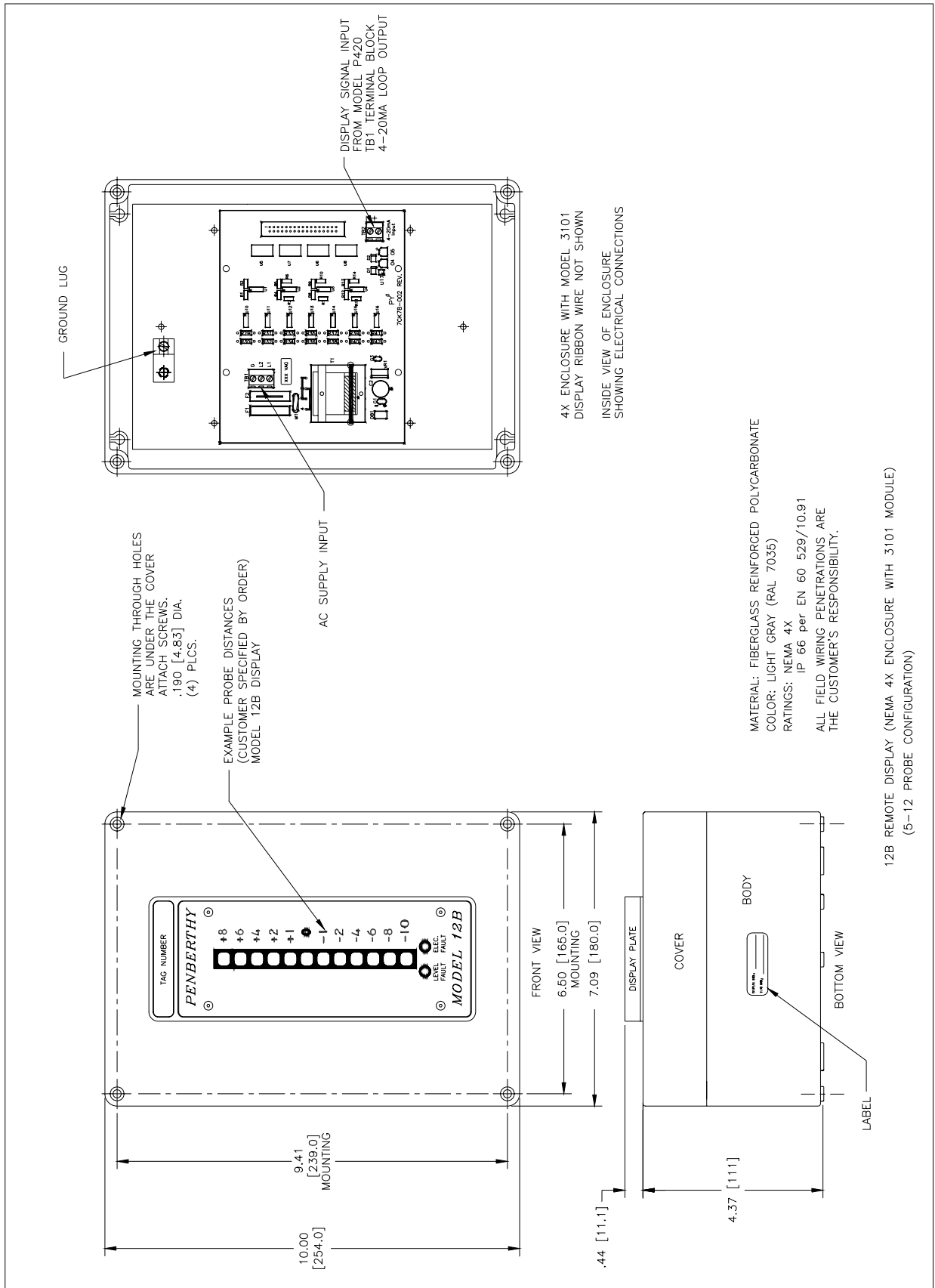


Figure 3 - Remote Display - 4X Enclosure 5-12 Probe

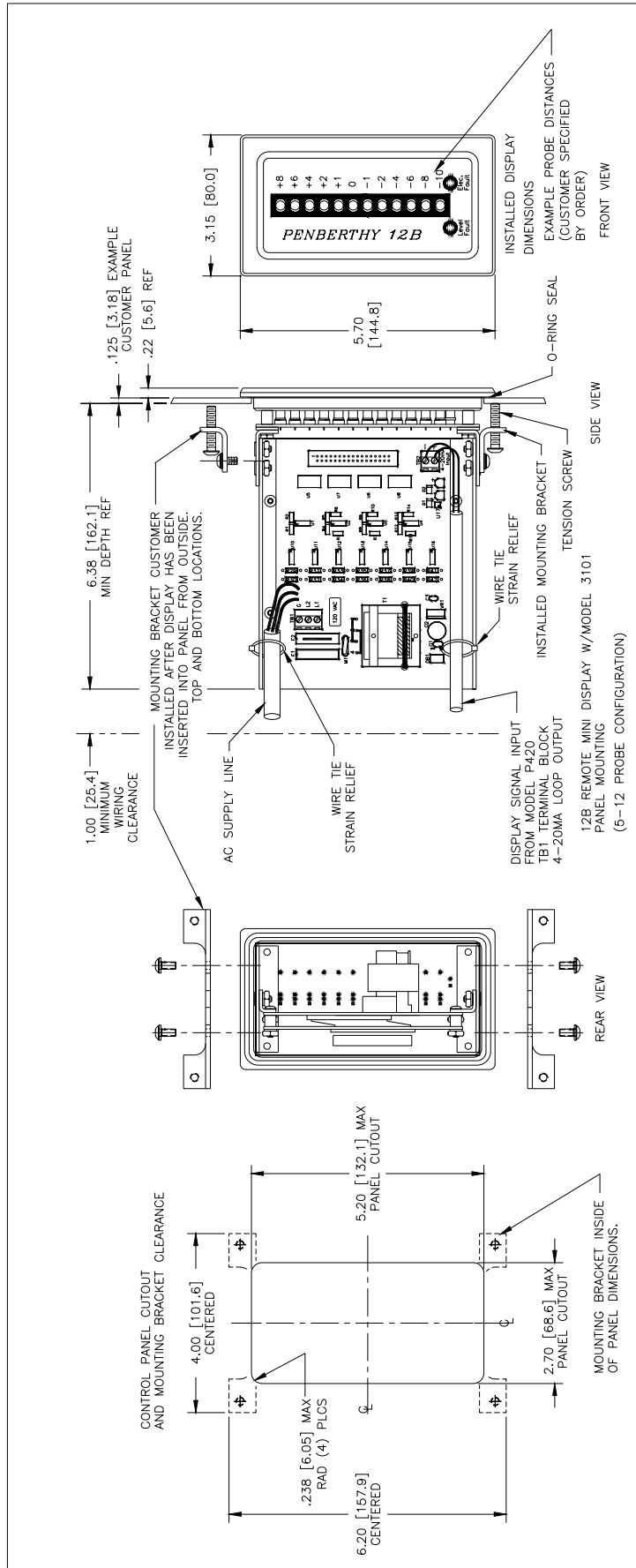


Figure 5 – Remote Display – Panel Mount Mini 5-12 Probe

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